## CURRENTS AT THE ENTRANCE OF THE BAY OF FUNDY

drvn determinations at a series of depths in June, and eight in August, at slock water on the dates given :---

At both dates there is thus a mean difference of 3°.8. The ebb water from the Bay is colder than the incoming water by this amount; and the other temperatures of the arise show that this is the case from the surface as far down as 50 fathoms. It is not easy to explain why this should be, without more extended investigation.

Effect of islands and shoals in modifying the temperature of the water.—This effect is very distinct; and it appears to result from the stirring up of the water. It causes a long trail or wake of colder water to extend from islands or shoals along the line of the current; as for example, north and south from Lurcher shoal. Where the water moves to and fro in an unbroken sheet, as it does outside the 50-fathom line where clear of obstruction, the surface temperature is more uniform; and the rise in temperature with the progress of the season is more easily ascertained.

The lower temperatures on the 30-fathom bank off Cape Sable may thus be explained. In the middle of July the surface temperature as found from runs in the vicinity of Yarmouth, and also on the south-east coast of Nova Scotia (Station E) was  $50^{\circ}$  to  $51^{\circ}$ ; while at Stations F and G off Cape Sable, it was only  $45^{\circ}$  to  $47^{\circ}$ . This would correspond with water at a depth of 15 fathoms, brought to the surface by the shoal.

Where the islands and shoals are numerous, the general effect of these strong currents is to chill the water in the vicinity of the coast, by mixing the surface water with the colder water from below. It is possible that this may have a bearing on the formation of fog in these regions, by the lowering of the surface temperature.

Rise in temperature with the progress of the season.—From runs made at different times in the same vicinity, and stations occupied twice at different dates, the best comparative results are as follows. They are the averages of 8 to 55 individual observations.

Yarmouth to Station B. June 7,	Temporature	411°July	12-30,	Temperature	51°
Station A. June 3-5.	н	43°Aug.	15-18		550
" C. " 16-18	u	47° Sept.	6-12		531
Brier island to Station C. July 6,		50°	3	**	5110
Grand Manan island south-east to	Station N		1 and	16 11	53°

NOTE SUMMARIZING THE CHARACTERISTICS OF THE CURRENTS.

The following notes are given in the endeavour to summarize the leading characteristics of the current is this region. They refer to the currents at an offing of  $3\frac{1}{2}$  to 15 miles from shore, on the routes usually taken by steamships, and they are not intended to include the currents among the islands and shoals nearer shore.

(1) The currents are predominantly tidal in their character, running strongly during flood and ebb in the two directions, which are usually opposite. Any veering, or

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